

**LISTING OF CLAIMS:**

Please consider the claims as follows:

1           1.       (previously presented) Apparatus adapted for use in long haul transmission  
2       in an optical communication system, comprising:  
3           at least one modulator, for modulating an optical phase of pulses within a  
4       sequence of return-to-zero (RZ) pulses having a duty cycle of less than or equal to  
5       approximately 33% to form an optical phase modulated signal encoded by one of phase  
6       shift keying (PSK), differential phase shift keying (DPSK) or quadrature phase shift  
7       keying (QPSK) in accordance with an input digital data stream;  
8           a wavelength division multiplexer adapted to combine an output signal of said at  
9       least one modulator with other optical phase modulated signals having optical carriers  
10      with different wavelengths;  
11          a dispersion managed optical transmission medium for transmitting an output  
12      wavelength division multiplexed signal of said wavelength division multiplexer; and  
13          a means for transmitting the wavelength division multiplexed signal in the  
14      dispersion managed optical transmission medium.

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          2-9.   (canceled)

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1           10.   (previously presented) The invention defined in claim 1 wherein said at  
2       least one modulator is a LiNbO<sub>3</sub> phase modulator.

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1           11.   (previously presented) The invention defined in claim 1 wherein said at  
2       least one modulator is a LiNbO<sub>3</sub> Mach-Zehnder phase modulator.

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1           12.   (previously presented) The invention defined in claim 1 wherein said  
2       apparatus further comprises at least one receiver including a delay demodulator for  
3       receiving said input digital data stream from the dispersion managed optical transmission  
4       medium.

1           13.   (previously presented) The invention defined in claim 1 wherein said  
2 apparatus further comprises a receiver including at least one balanced receiver for  
3 recovering said input digital data stream from a transmitted wavelength division  
4 multiplexed signal.

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          14.   (canceled)

1           15.   (previously presented) The invention defined in claim 1 wherein said  
2 transmission medium includes discrete or distributed means of erbium-doped fiber  
3 amplification (EDFA) or Raman amplification.

1           16.   (previously presented) A method of transmission for long haul optical  
2 communications, comprising the steps of:

3           modulating an optical carrier signal in a sequence of return-to-zero (RZ) pulses  
4 having a duty cycle of less than or equal to approximately 33%;

5           modulating an optical phase of said pulses in accordance with an input digital data  
6 stream to form an optical phase modulated signal via one of phase shift keying (PSK),  
7 differential phase shift keying (DPSK) or quadrature phase shift keying (QPSK);

8           combining said optical phase modulated signal with other optical phase  
9 modulated signals having optical carriers with different wavelengths to form a  
10 wavelength division multiplexed signal; and

11          transmitting said wavelength division multiplexed signal in a dispersion managed  
12 optical transmission medium.

          17-20. (canceled)

1           21.   (previously presented) The method of claim 16, wherein dispersion  
2 management is provided by applying pre-dispersion compensation and post-dispersion  
3 compensation to said wavelength division multiplexed signal.

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1           22.     (previously presented) The method of claim 16, wherein dispersion  
2 management is provided by soliton transmission of said wavelength division multiplexed  
3 signal.

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1           23.     (previously presented) The method of claim 22, wherein the dispersion  
2 managed optical transmission medium comprises a plurality of serially interconnected  
3 fibers arranged such that adjacent interconnected fibers have alternating and opposite  
4 dispersion characteristics.

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1           24. (previously presented) The method of claim 16, wherein the dispersion  
2 managed optical transmission medium comprises one or more optical fibers exhibiting a  
3 high chromatic dispersion.

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1           25.     (previously presented) The apparatus of claim 1, wherein dispersion  
2 management is provided by applying pre-dispersion compensation and post-dispersion  
3 compensation to said wavelength division multiplexed signal.

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1           26.     (previously presented) The apparatus of claim 1, wherein dispersion  
2 management is provided by soliton transmission of said wavelength division multiplexed  
3 signal.

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1           27.     (previously presented) The apparatus of claim 26, wherein the dispersion  
2 managed optical transmission medium further comprises a plurality of serially  
3 interconnected fibers arranged such that adjacent interconnected fibers have alternating  
4 and opposite dispersion characteristics.

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1           28.     (previously presented) The method of claim 11, wherein the dispersion  
2 managed optical transmission medium comprises one or more optical fibers exhibiting a  
3 high chromatic dispersion.